

Application No. 09/620,498
Preliminary Amendment dated November 17, 2005
Reply to Office Action of August 24, 2005

REMARKS

Status Of Application

Claims 1, 2, 6-8, 10-18, 20 and 23-39 were pending in the Application. By this Preliminary Amendment, new claims 40-44 are added. Thus, the status of the claims is as follows:

Claims 1, 2, 6, 11, 16 and 25-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Published U.S. Patent Application No. 2001/0045508 to Dierickx ("Dierickx"), in view of U.S. Patent No. 5,289,286 to Nakamura et al. ("Nakamura"), and in further view of U.S. Patent No. 6,188,109 to Takahashi ("Takahashi").

Claims 7, 8 and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dierickx, Nakamura and Takahashi, and in further view of U.S. Patent No. 6,512,543 to Kuroda ("Kuroda").

Claims 14 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dierickx, Nakamura and Takahashi, and in further view of U.S. Patent No. 6,323,479 to Hyncek ("Hyncek").

Claims 10-13, 15, 17, 18, 20, 23, 24 and 30-39 are allowed.

New Claims

This Preliminary Amendment adds new claims 40-44. Support for claim 40 is found on page 11, line 21 – page 14, line 7. Support for claim 41 is found on page 11, line 21 – page 12, line 9. Support for claim 42 is found on page 13, line 10 – page 14, line 7. Support for claim 43 is found on page 11, line 21 – page 12, line 9. Support for claim 44 is found on page 12, line 20 – page 14, line 7.

35 U.S.C. § 103(a) Rejection

The rejection of claims 1, 2, 6, 11, 16 and 25-27 under 35 U.S.C. § 103(a), as being unpatentable over Dierickx and Nakamura in view of Takahashi, is respectfully traversed based on the following.

Claim 1 includes the limitation:

a controller that detects a variation in sensitivity of the photoelectric conversion portion of each pixel by causing an electric charge indicative of the threshold voltage of the field effect transistor to accumulate on the field effect transistor and reading out the electric charge via the lead-out path.

Thus, claim 1 requires that the controller cause an electric charge indicative of the threshold voltage to accumulate on the transistor.

Both Dierickx and Nakamura disclose pixel circuit configurations for imaging apparatuses. As noted in the Office Action, neither of these references explicitly teaches that variations in sensitivity can be detected by causing an electric charge that is indicative of the threshold voltage of the transistor to accumulate on the transistor. To this end, Takahashi is cited as it supposedly detects the threshold voltage of a transistor. A careful reading of the cited portion of Takahashi shows that the threshold voltage is used to detect "abnormalities" that cause a change in the threshold voltage, *see* col. 23, lines 47-51. The immediately preceding paragraph indicates these abnormalities include when "the device is short circuited," *see* col. 23, lines 33-45. Such a short circuit would clearly be unintentional, as transistors are not intended to operate in this manner as the short circuit causes thermal runaway, leading to the destruction of the transistor, *see* col. 23, lines 35-39. Thus, one would hardly expect a controller to intentionally cause a short circuit when such an act could destroy the device merely to allow an electric charge indicative of the threshold to accumulate on the transistor. Thus, Takahashi, like Dierickx and Nakamura,

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fails to disclose or suggest the above limitation of claim 1, and therefore the combination of Dierickx, Nakamura and Takahashi fails to render obvious the apparatus of claim 1.

Furthermore, combining Takahashi with Dierickx and Nakamura is improper. As noted above, both Dierickx and Nakamura are related to optical imaging systems. Takahashi is related to protecting a power semiconductor device from overloading and subsequent failure, due to short circuits and the like. The Office Action fails to provide any motivation for combining an invention to protect a power transistor from failing with an optical imaging system designed to minimize noise in the resultant image. Without some suggestion to combine Takahashi with Dierickx and Nakamura, this combination fails to render obvious the apparatus of claim 1 for this additional reason.

In sum, the combination of Dierickx, Nakamura and Takahashi fails to render obvious the apparatus of claim 1 for at least two reasons. Claims 2, 6, 11 and 16 depend from nonobvious claim 1 and are nonobvious for at least the same reasons as claim 1.

Claim 25 includes the limitation:

a controller that detects a variation in sensitivity of the photoelectric conversion portion of each pixel by causing an electric charge indicative of the threshold voltage of the field effect transistor to accumulate on the field effect transistor and reading out the electric charge via the lead-out path.

Thus, claim 25, much like claim 1, requires the controller to cause an electric charge to accumulate on the transistor that is indicative of the threshold voltage of the transistor.

As discussed above, the combination of Dierickx, Nakamura and Takahashi fails to disclose or suggest a controller having the required properties. Furthermore, the combination of Dierickx, Nakamura and Takahashi itself is not proper due to their drastically different applications. Therefore, the combination of Dierickx, Nakamura and

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Takahashi cannot render claim 25 obvious. Claims 26 and 27 depend from nonobvious claim 25 and are nonobvious for at least the same reasons.

Accordingly, it is respectfully requested that the rejection of claims 1, 2, 6, 11, 16 and 25-27 under 35 U.S.C. § 103(a) as being unpatentable over Dierickx and Nakamura in view of Takahashi, be reconsidered and withdrawn.

The rejection of claims 7, 8 and 28 under 35 U.S.C. § 103(a), as being unpatentable over Dierickx, Nakamura and Takahashi, in view of Kuroda, is respectfully traversed based on the following.

Claims 7 and 8 depend indirectly from claim 1. As discussed above, the combination of Dierickx, Nakamura and Takahashi fails to render obvious the apparatus of claim 1 for at least two reasons. The addition of Kuroda to this combination fails to overcome this deficiency. Kuroda discloses an image sensing apparatus, but does not disclose or suggest the controller of claim 1 that “caus[es] an electric charge indicative of the threshold voltage of the field effect transistor to accumulate on the field effect transistor.” In fact, Kuroda fails to even mention “threshold voltage” in its sixteen columns of disclosure. Therefore, the combination of Dierickx, Nakamura, Takahashi and Kuroda fails to disclose or suggest each limitation of claim 1 and cannot render obvious the apparatus of claim 1. Furthermore, the combination of Dierickx, Nakamura, Takahashi and Kuroda is improper as Takahashi is directed to protecting a power transistor from being destroyed by a shorted output terminal, while the remaining references are all directed to optical imaging systems. Thus, claim 1 is nonobvious over the combination of Dierickx, Nakamura, Takahashi and Kuroda for this additional reason. Claims 7 and 8 depend from nonobvious claim 1 and are nonobvious themselves for at least the same reasons.

Claim 28 depends from claim 25. Claim 25 requires a controller that “caus[es] an electric charge indicative of the threshold voltage of the field effect transistor to accumulate on the field effect transistor.” As just discussed, the combination of Dierickx,

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Nakamura, Takahashi and Kuroda fails to disclose or suggest such a controller for at least two reasons. Claim 25 is therefore considered nonobvious as the combination of Dierickx, Nakamura, Takahashi and Kuroda fails to disclose or suggest each limitation of claim 25. Claim 28 depends from claim 25 and is nonobvious for at least the same reasons as claim 25.

Accordingly, it is respectfully requested that the rejection of claims 7, 8 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Dierickx, Nakamura and Takahashi, in view of Kuroda, be reconsidered and withdrawn.

The rejection of claims 14 and 29 under 35 U.S.C. § 103(a), as being unpatentable over Dierickx, Nakamura and Takahashi, in view of Hynecek, is respectfully traversed based on the following.

Claim 14 depends from claim 1. As discussed above, the combination of Dierickx, Nakamura and Takahashi fails to render obvious the apparatus of claim 1 for at least two reasons. The addition of Hynecek to this combination fails to overcome this deficiency. While Hynecek discloses operating a pixel in a logarithmic mode based upon subthreshold conduction, Hynecek fails disclose or suggest a controller that "caus[es] an electric charge indicative of the threshold voltage of the field effect transistor to accumulate on the field effect transistor." Therefore, the combination of Dierickx, Nakamura, Takahashi and Hynecek fails to disclose or suggest each limitation of claim 1 and cannot render obvious the apparatus of claim 1. Furthermore, the combination of Dierickx, Nakamura, Takahashi and Hynecek is improper as Takahashi is directed to protecting a power transistor from being destroyed by a shorted output terminal, while the remaining references are all directed to optical imaging systems. Thus, claim 1 is nonobvious over the combination of Dierickx, Nakamura, Takahashi and Hynecek for this additional reason. Claim 14 depends from nonobvious claim 1 and is nonobvious itself for at least the same reasons.

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Claim 29 depends from claim 25. Claim 25 requires a controller that "caus[es] an electric charge indicative of the threshold voltage of the field effect transistor to accumulate on the field effect transistor." As just discussed, the combination of Dierickx, Nakamura, Takahashi and Hynecek fails to disclose or suggest such a controller for at least two reasons. Claim 25 is therefore considered nonobvious as the combination of Dierickx, Nakamura, Takahashi and Hynecek fails to disclose or suggest each limitation of claim 25. Claim 29 depends from claim 25 and is nonobvious for at least the same reasons as claim 25.

Accordingly, it is respectfully requested that the rejection of claims 14 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Dierickx, Nakamura and Takahashi, in view of Hynecek, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment increases the number of independent claims by 1 from 7 to 8 and increases the total number of claims by 5 from 38 to 43, but does not present any multiple dependency claims. Accordingly, a Response Transmittal and Fee Authorization form authorizing the amount of \$450.00 to be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260 is enclosed herewith in duplicate. However, if the Response Transmittal and Fee Authorization form is missing, insufficient, or otherwise inadequate, or if a fee, other than the issue fee, is required during the pendency of this application, please charge such fee to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

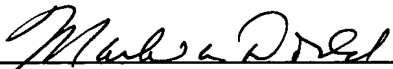
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Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

By: 
Mark A. Dodd
Registration No. 45,729
Attorney for Applicant

MAD:fis:jkk
SIDLEY AUSTIN BROWN & WOOD LLP
717 N. Harwood, Suite 3400
Dallas, Texas 75201
Direct: (214) 981-3481
Main: (214) 981-3300
Facsimile: (214) 981-3400
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